

Appl. No. 09/745,385

Reply to Non-Final OA dated May 19, 2005

AMENDMENTS TO THE CLAIMS

Claims 2-5, 7-11, 13-15, 17-20, 22-24, 26-30, 32-34, 38-43, and 45-47 were originally pending. Please amend claims 27 through 30. Please cancel claims 4, 5, 9, 10, 26, and 47 without prejudice. In view of these amendments, claims 2, 3, 7, 8, 11, 13-15, 17-20, 22-24, 27-30, 32-34, 38-43, 45, and 46 remain pending.

The following listing of claims replaces all prior versions and listings of claims in the application.

1. (Canceled)

2. (Previously presented) A method comprising:

receiving, by a USB device, a host-specific device request from an application executing on a computing device coupled to the USB device;

identifying, by the USB device, a host-defined string descriptor defined by the application, the host-defined string descriptor being stored in firmware of the USB device; and

wherein the host-defined string descriptor comprises a custom property section comprised of one or more custom property entries, each custom property entry comprising information that corresponds to a respective custom property for the USB device.

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1 3. (Previously presented) A method as recited in claim 2, wherein the  
2 host-defined string descriptor further comprises:

3 a header section comprising an indication of the number of custom property  
4 entries for which mappings exist in the custom property section.

5  
6 4-6. (Canceled)

7  
8 7. (Previously presented) A method comprising:

9 querying, by a computing device coupled to a USB device, the USB device  
10 with a host-specific device request for a host-defined string descriptor associated  
11 with user interface information stored in firmware of the USB device;

12 responsive to the querying, receiving by the computing device, at least a  
13 portion of the user interface information; and

14 wherein the host-defined string descriptor comprises a custom property  
15 section comprised of one or more custom property entries, each custom property  
16 entry comprising information that corresponds to a respective custom property for  
17 the USB device.

18  
19 8. (Previously presented) A method as recited in claim 7, wherein the  
20 host-defined string descriptor further comprises a header section comprising an  
21 indication of the number of custom properties property entries for which mappings  
22 exist in the custom property section.

23  
24 9-10. (Canceled).

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11. (Previously presented) One or more computer-readable media containing a computer executable program that performs a method as recited in claim 7.

12. (Canceled)

13. (Previously presented) In a USB device that responds to device requests from a host, the device requests including USB-specific device requests with corresponding USB-specified request codes and device-specific device requests with corresponding device-specified request codes, the USB-specific device requests including a GET\_DESCRIPTOR device request with a corresponding GET\_DESCRIPTOR request code, a method comprising:

receiving a GET\_DESCRIPTOR device request that specifies a predetermined index, the GET\_DESCRIPTOR device request having been received from an application executing on a remote computing device;

responding to the GET\_DESCRIPTOR device request by returning a device-specific request code for subsequent use by the USB device to send an extended property descriptor responsive to subsequent receipt of a host-specific device request from the remote computing device, the extended property descriptor specifying user interface information corresponding to the USB device and provided by a vendor as being in a data format compatible with the application; and

wherein the user interface information comprises a custom property section comprised of one or more custom property entries, each custom property entry

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1 comprising information that corresponds to a respective custom property for the  
2 USB device.

3  
4 14. (Previously presented) A method as recited in claim 13, wherein the  
5 user interface information further comprises

6 a header section comprising an indication of the number of custom  
7 properties property entries for which mappings exist in the custom property  
8 section.

9  
10 15. (Previously presented) One or more computer-readable media  
11 containing a computer executable program that performs a method as recited in  
12 claim 13.

13  
14 16. (Canceled)

15  
16 17. (Previously presented) A method comprising:  
17 communicating, by a component of an operating system, a non-standard  
18 USB device request to a device, the non-standard USB device request requesting  
19 an extended property from the device, the extended property providing data that is  
20 predetermined to be compatible for use by the component or the operating system,  
21 the data comprising user interface information associated with the USB device;

22 responsive to the communicating, receiving, by the component, an extended  
23 property descriptor from the device, the extended property descriptor comprising  
24 at least the extended property; and  
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1 augmenting, by the operating system, a shell or user interface at the remote  
2 computing device to represent the USB device.

3  
4 18. (Previously presented) A method comprising:  
5 communicating, by a component of an operating system, a non-standard  
6 USB device request to a device, the non-standard USB device request requesting  
7 an extended property from the device, the extended property providing data that is  
8 predetermined to be compatible for use by the component or the operating system,  
9 the data comprising user interface information associated with the USB device;

10 responsive to the communicating, receiving, by the component, an extended  
11 property descriptor from the device, the extended property descriptor comprising  
12 at least the extended property; and

13 wherein the extended property descriptor further comprises a custom  
14 property section comprised of one or more custom property entries, each custom  
15 property entry comprising information that corresponds to a respective custom  
16 property for the USB device.

17  
18 19. (Previously presented) A method as recited in claim 18, wherein the  
19 extended property descriptor further comprises a header section comprising an  
20 indication of the number of custom properties property entries for which mappings  
21 exist in the custom property section.

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1           20.   (Previously presented) A method comprising:  
2           communicating, by a component of an operating system, a non-standard  
3           USB device request to a device, the non-standard USB device request requesting  
4           an extended property from the device, the extended property providing data that is  
5           predetermined to be compatible for use by the component or the operating system,  
6           the data comprising user interface information associated with the USB device;  
7           responsive to the communicating, receiving, by the component, an extended  
8           property descriptor from the device, the extended property descriptor comprising  
9           at least the extended property and user interface information corresponding to the  
10          USB device; and  
11          responsive to receiving the extended property descriptor, providing  
12          information corresponding to the user interface information to one or more  
13          computer program applications.

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15          21.   (Canceled)  
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1           22. (Previously presented) A USB device comprising:  
2           a processor;  
3           a port coupled to the processor;  
4           a memory coupled to the processor;  
5           an extended property descriptor stored in the memory, the extended  
6           property descriptor identifying a set of user interface information corresponding to  
7           the USB device and in a data format predetermined to be compatible for use by a  
8           requesting application executing on a remote computing device, the extended  
9           property descriptor further comprising a custom property section comprised of one  
10          or more custom property entries, each custom property entry comprising  
11          information that corresponds to a respective custom property for the USB device;  
12          and

13          a control program module stored in the memory, the control program  
14          module being configured to send the extended configuration descriptor to a  
15          requestor in response to receiving a host-specific device request at the port.

17          23. (Previously presented) A USB device recited in claim 22, wherein  
18          the extended property descriptor further comprises

19          a header section comprising an indication of the number of custom  
20          properties property entries for which mappings exist in the custom property  
21          section.

23          24. (Previously presented) A USB device recited in claim 22, wherein  
24          the set of user interface information is in a data format specified in anticipation of  
25          its compatible use by an operating system.

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25-26. (Canceled)

27. (Currently amended) ~~A computer-readable storage medium as recited in claim 26;~~ A computer-readable storage medium comprising computer-executable instructions utilized by an application program to interact with a USB device, wherein the computer-executable instructions comprise:

receiving a request from an application program for a property descriptor that specifies user interface information in a data format predetermined to be compatible for use by the application program and corresponding to the USB device;

querying the USB device with a host-specific device request to obtain the property descriptor;

responsive to the querying, receiving the property descriptor, wherein the property descriptor comprises comprising one or more custom property sections, each custom property section indicating information corresponding to a user interface element for the USB device;

providing the property descriptor to the requesting application program;

and

augmenting, by the application program, a shell or user interface with the user interface information for presentation to a user.



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28. (Currently amended) ~~A computer-readable storage medium as recited in claim 26;~~ A computer-readable storage medium comprising computer-executable instructions utilized by an application program to interact with a USB device, wherein the computer-executable instructions comprise:

receiving a request from an application program for a property descriptor that specifies user interface information in a data format predetermined to be compatible for use by the application program and corresponding to the USB device;

querying the USB device with a host-specific device request to obtain the property descriptor;

responsive to the querying, receiving the property descriptor, wherein the property descriptor comprises: comprising:

(a) a header section indicating the number of custom properties for which mappings exist in the property descriptor; and

(b) one or more custom property sections, each custom property section indicating information corresponding to a user interface element for the USB device;

providing the property descriptor to the requesting application program;

and

augmenting, by the application program, a shell or user interface with the user interface information for presentation to a user.

29. (Currently amended) A computer-readable storage medium as recited in claim 27 26, wherein the user interface information is selected from information comprising an icon, a font, a picture, a label, a help page, or a URL.

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1  
2 30. (Currently amended) A computer comprising one or more computer-  
3 readable media as recited in claim 27 26.

4  
5 31. (Canceled)

6  
7 32. (Previously presented) One or more computer-readable media  
8 containing a computer-executable program for use in conjunction with a USB  
9 device that responds to device requests from the program, the device requests  
10 including USB-specific device requests with corresponding USB-specified request  
11 codes and device-specific device requests with corresponding device-specified  
12 request codes, the program comprising:

13 receiving a host-specific request for an extended property descriptor from a  
14 requestor, the extended property descriptor indicating one or more user interface  
15 elements that correspond to the USB device, the extended property descriptor  
16 further comprising a custom property section that corresponds to a user interface  
17 element of the one or more user interface elements, the one or more user interface  
18 elements being predetermined to be compatible for use by an application  
19 executing or for execution on a remote computing device; and

20 responsive to the receiving, communicating the extended property  
21 descriptor to the requestor.  
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1           33. (Previously presented) One or more computer-readable media as  
2 recited in claim 32, wherein the extended property descriptor further comprises a  
3 header section indicating the number of custom properties for which mappings  
4 exist in the property descriptor.

5  
6           34. (Previously presented) A computer comprising one or more  
7 computer-readable media as recited in claim 32.

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9           35 - 37. (Canceled).

10  
11           38. (Previously presented) A method as recited in claim 2, and further  
12 comprising communicating, by the USB device, the host-defined string descriptor  
13 to the application.

14  
15           39. (Previously presented) A method as recited in claim 2, wherein the  
16 host-defined string descriptor comprises information in a data format specified by  
17 a host of the USB device.

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19           40. (Previously presented) A method as recited in claim 2, wherein the  
20 host-defined string descriptor comprises user interface elements for presentation  
21 by the application to a user for interfacing with the USB device.

22  
23           41. (Previously presented) A method as recited in claim 2, wherein the  
24 host-defined string descriptor comprises one or more user interface elements such  
25 as an icon, a font, a picture, a label, a help page, or a URL.

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1 42. (Previously presented) A method as recited in claim 2, wherein the  
2 host-defined string descriptor comprises information for one or more user interface  
3 elements in a data format specified by a host of the USB device.

4  
5 43. (Previously presented) A method as recited in claim 2, wherein the  
6 application is an operating system.

7  
8 44. (Canceled)

9  
10 45. (Previously presented) A method as recited in claim 7, wherein the  
11 method further comprises displaying, by the computing device, a set of user  
12 interface elements specified by the at least a portion to present a user interface  
13 appropriate to the USB device to a user.

14  
15 46. (Previously presented) A method as recited in claim 13, wherein the  
16 application is an operating system.

17  
18 47. (Canceled).